

## Periodic Report nr 5 – North Sea Region – Project IWTS



### Workpackage 4 – Development of a zero emission vessel

#### 1. Testbed Ghent

De Groote-Houtboerke had a big challenge in developing a zero emission vessel.

First we have to deal with the specific character of the inland waterways in the testarea in the city of Ghent.

Ghent is an old medieval structured city, based on Roman remnants. The inland waterways are fine-meshed blue veins in the cityplan and been used for centuries for transporting goods from outer city towards the marketplaces in the city center.

During the 60 – 70ies a lot of old inland waterways were filled up to make place for cars and parkings. After 40 years being used as parking lot, the appreciation for the cityscape has been growing, and a lot has been transformed in the city infrastructure. Many bridges have been restaured and old muffles canals were digged out again to be used for pleasure boating and tourist attractions.

The city has developed a “Vision for water in the city”, where the demands of all stakeholders has been combined in a futureproof vision for using the inland waterways in the city.



To develop the best design for a urban vessel for city distribution we did a lot of investigation on the infrastructure of the city, situation of the width and depths of the canals and rivers, vertical clearance under the bridges, load- and unloadinfrastruture, possibilities of the last mile, SWOT analyses,....



A long list was made of all problems related to the future use of the inland waterways of the testbed of Ghent.

## **2. The choice between the refit of an existing boat or development of a new zero emission vessel**

On the second hand we have to decide if we are able to use an existing type of vessel and do the refit of it, or if we have to design a new one.

One of the requirements of the project was the development of a zero emission vessel, so we were limited to the choice of electrical propulsion, LNG or Hydrogen.

In case we choose for the refit of an existing vessel, we have to take out the old engine, refit the complete hold of the ship, make space for the engine, batterypack in acid-free containers,...

More over the limitation of the small budget for developing a zero emission boat was big in this study.

We have seen a lot of ships that could be used for this project, but every possible choice was limited by the infrastructure of the testbed, limitations in weight, depth and size of the boat, and budget.

In the same time we have tendered the development of the boat, and received some answers.

### 3. Goods to be transported – setting up pilotcases

Aside the decision what kind of boat will be developed, the main question was which kind of goods could be transported.

A large study was made concerning what type of goods could be taken out of the regular logistic flow of transportation by road and be shifted towards transport over water. A long list of possible goods was made to be tested in the testphase of the project.

Beside the needs of the suppliers of goods, we have to take into consideration the requirements of the city and the needs of the end customer.

We organized consortia of stakeholders with the ceo's of companies who were interested, meetings with the city of Ghent and the waterauthority, meetings to understand the lessons learned with other cities, customer organizations,....

### 4. Change of partnership : welcome to a new partner TESCO



Due to the Coronacrisis De Groote- Houtboerke (DGH), suffered a setback. The company had to close down for several months and they were not able to fulfill their obligation to build an urban boat. Fortunately, a new partner was soon found: TESCO or The European Shipping Company.

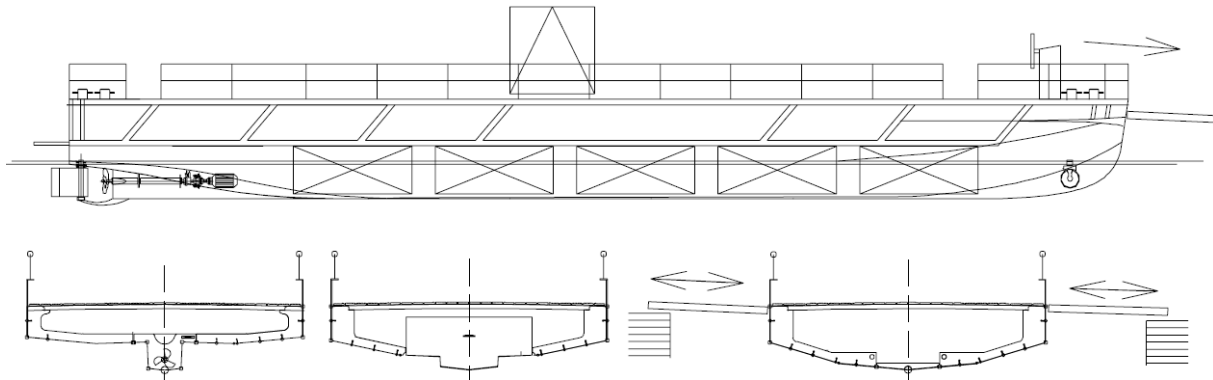
Negotiations with TESCO started up and that ended in a strong co-operation between DGH and TESCO. This eventually led to a major change, which was approved by the Joint Secretariat. From May this year both parties are working together in the #IWTS Interreg North Sea Region project.

The TESCO company was established in 1991 as the Overmeer Transport Group and based in Amsterdam. TESCO (or abbreviation of The European Shipment Company) has a fleet of 6 dry cargo vessels between 1.100 and 1.800 tons. TESCO is specialized in middle size inland shipping and offers alternative transport solutions in the city.

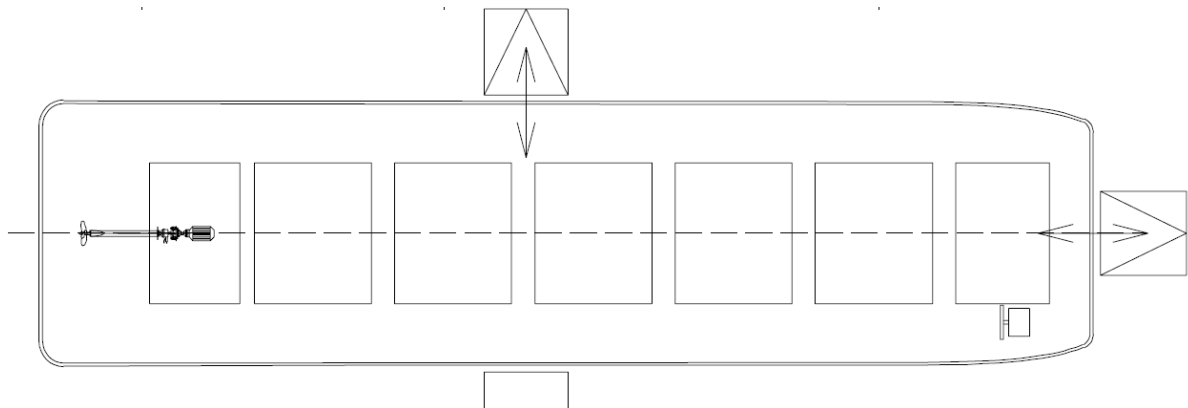
The building of a ship that is planned within the project is now being carried out by both GHB and Tesco. Due to the preparations already done by GHB in the last two years, the building of the vessel can start quickly. The ship will be ready at the end of August 2020 and moved to Gent for testing and setting up pilotcases (at the end of May 2021).

## 5. Design of the vessel

After showing an overview of the quotations of the designs of new vessels, and the possible second hand vessels, the choice was made to build a new zero emission vessel with electrical propulsion.



The construction plan of the urban boat



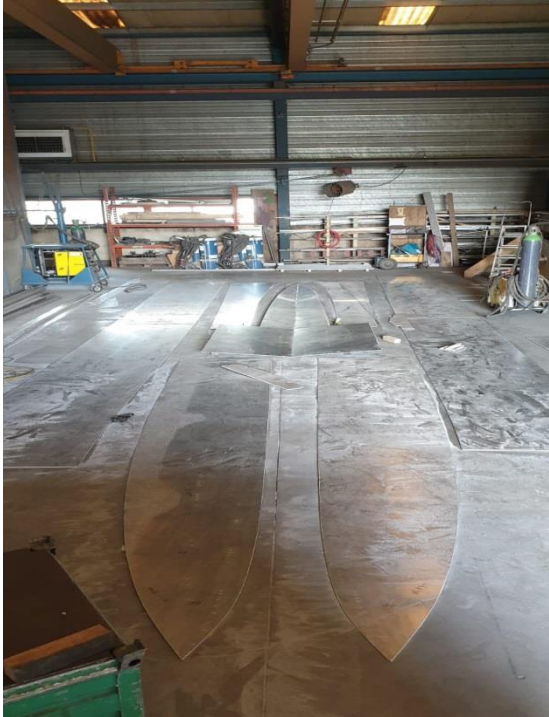
The vessel design, adapted to the inland waterways of the city of Ghent, is a flatship model with capacity of 20 T and is made of aluminum. With a size of 14.95 m x 4 m and a draft of 0.4 m it is perfectly fit for the shallow watercourses in the medieval city. The propulsion with a fully electric engine with a battery pack of 20 KW which make the ship CO2 neutral. The sailing capacity will be 8 hours at a speed of 8 km per hour (theoretically measured, but need testing in the urban environment).

The ship will start sailing manned, but is to be sailing autonomous in future. The ship can transport small bulk goods (pallet goods), small building materials, small containers, big bags (20 tons). Testing will start by DGH in Ghent beginning September 2020 with all kind of materials.

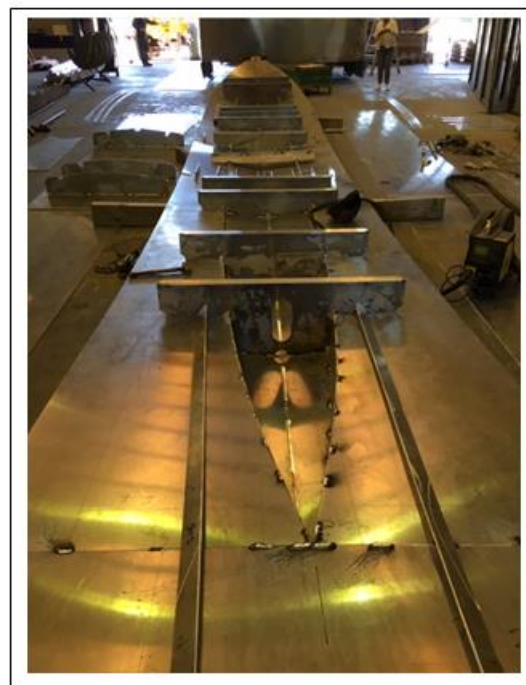


## 6. Overview of the construction of the boat : an impression

Make the cuttingplans and cut the aluminum by a specialized company



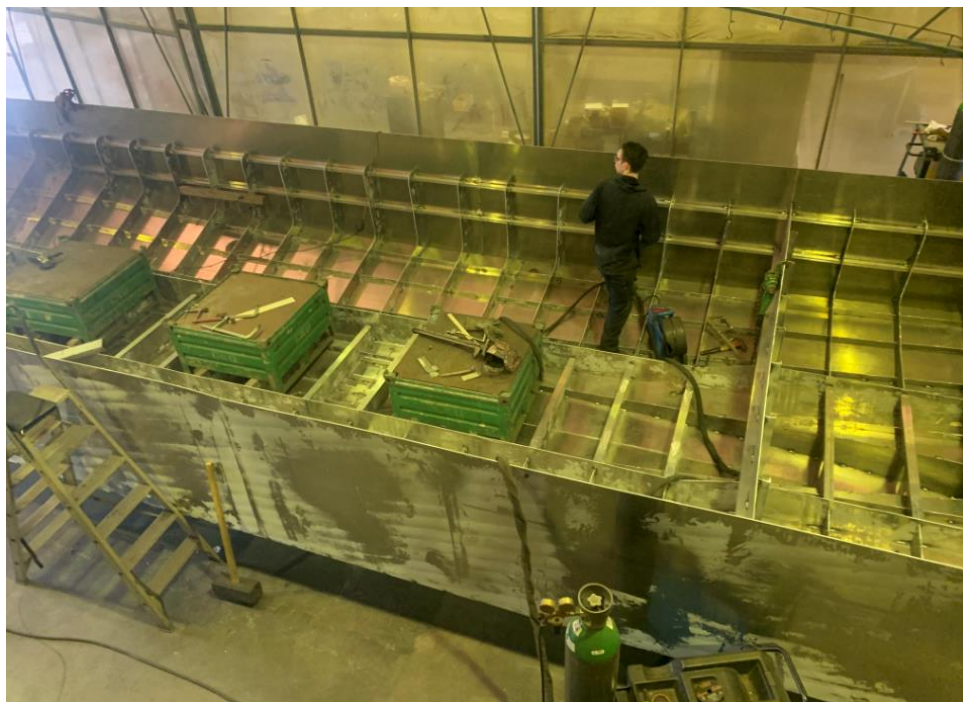
Laying the keel



Welding the ribs of the boat :



Creating the hull:







Closing the deck :



At this point the periodic report number 5 has ended. More specifications on the building of the hull and the installation of the engine and batterypack will be taken into report number 6.

On this WP in the project we have an article in the Newsletter of the project IWTS :



**Interreg**  
North Sea Region  
#IWTS 2.0  
European Regional Development Fund



EUROPEAN UNION

#IWTS: Mobilising small waterway transport potentials

**July 2020**

# Newsletter No 4

Starting to adopt #IWTS solutions

#IWTS 2.0 is an Interreg VB North Sea Region project. 10 partners from the region seek to enhance smaller waterway transport potentials in a transnational context.

New waterway-, barges- and training solutions will enable green modal shifts from road to water.

**Total budget**  
€ 3.462.734

**Project duration:**  
01/08/2017 to 30/06/2021

[www.northsearegion.eu/iwts20](http://www.northsearegion.eu/iwts20)



## #IWTS 2.0

Inland navigation provides an environmentally friendly way to serve transport needs in a growing, and increasingly digital logistics industry across Central Europe. The project #IWTS 2.0 – IWTS for Inland Waterway Transport – brings together public infrastructure managers, private barge operators and training institutions to offer a fresh perspective on inland shipping.

